



## Iowa Governor's Council on Physical Fitness & Nutrition

### Exercise #3 SPINAL EXTENSION FROM PRONE (Back Extension)

Cadence: Slow 4 Counts

#### Starting Position

On stomach; legs and feet together, toes pointed; arms at side, palms facing.



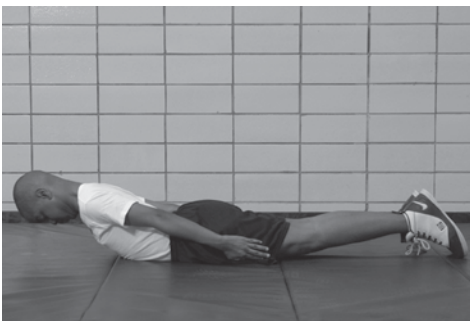
#### Count 1

Lift chest off floor without tilting neck.



#### Count 2

Inhale, hold position.



#### Count 3

Exhale during return to Starting Position.



#### Count 4

Hold.



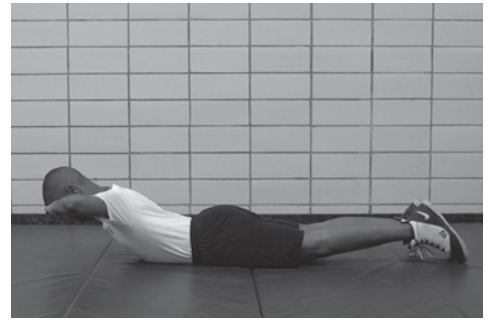
#### Level 2

Starting Position as Level 1, but with hands on forehead palms down.



#### Level 2 Motion

As before, moving arms with the upper body.



#### Level 3

Starting Position as Level 1, but with arms overhead, palms facing (thumbs up).



#### Level 3 Motion

As before, moving arms with the upper body.



## Exercise #3 SPINAL EXTENSION FROM PRONE POSITION

**Purpose:** To strengthen the postural muscles of the spine

**Common uses for emphasized muscles in daily activity:** Keeping the spine in a tall and lengthened position

**Muscular Emphasis:** Transverse abdominis to compress abdomen and stabilize lumbo-pelvic region; erector spinae and hip extensors move from neutral to thoracic extension of the spine

**Primary Muscle Mover(s):** Spinal Extensors (erector spinae, multifidus and semispinalis)

**Secondary Muscle Mover(s):** Shoulder girdle stabilizers (to move scapulae into neutral from protracted position)

**Muscle Stabilizers:** Abdominals to prevent overextension of lumbar spine, scapular stabilizers throughout

### Postural Landmarks:

- Engage abdominals throughout spinal extension to prevent overextension of lumbar spine
- Maintain scapulae in neutral position throughout, avoiding protraction or retraction
- Ensure extension occurs bilaterally at the same tempo
- Do not go into hyperextension (higher than the body's ability to stabilize with abdominal and scapulae stability)
- Do not hyperextend the cervical vertebrae

### Anatomy:

#### *Erector Spinae*

*Erector Spinae* has attachments throughout the spinal column running the full length of the posterior ribs and spine. <http://www.exrx.net/Muscles/ErectorSpinae.html>

#### *Semispinalis*

*Semispinalis* lie underneath the erector spinae muscles. They exist on the posterior spine throughout the cervical and thoracic vertebrae. They originate on the outside (transverse processes) of the cervical and thoracic vertebrae and insert throughout the thoracic and cervical vertebrae as well as the occipital bone (skull) 3 to 6 levels above their origin.

#### *Multifidus*

*Multifidus* lie underneath the semispinalis. They run the length of the spine, from the cervical vertebrae to the sacrum. They basically originate on the outside (transverse processes) of all vertebrae and insert on the vertebral body 2 to 4 above their origin.